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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,035	12/31/2001	Keizo Ohnishi	217662US3	5168

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EXAMINER

KIM, TAE JUN

ART UNIT PAPER NUMBER

3746

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/032,035	Applicant(s) OHNISHI ET AL.	
	Examiner Ted Kim	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/10/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-29 is/are pending in the application.
 4a) Of the above claim(s) 13-16, 18-24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12, 17, 25 and 27-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/10/2004 has been entered.

Response to Amendment

2. Claims 13-16, 18-24, 26 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **with** traverse in the reply filed on 06/02/2003.

3. Newly presented claims 21-24, as noted by applicant, correspond to canceled claims 8-11 which were previously non-elected by applicant and hence their status is also non-elected. Claim 26 also corresponds to previously non-elected claim 8 by applicant and hence its status is also non-elected.

4. Applicant is advised that the amended claims 13-24 should be carefully considered for support in the originally filed specification, as a significant number of these claims appear to raise the question of new matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

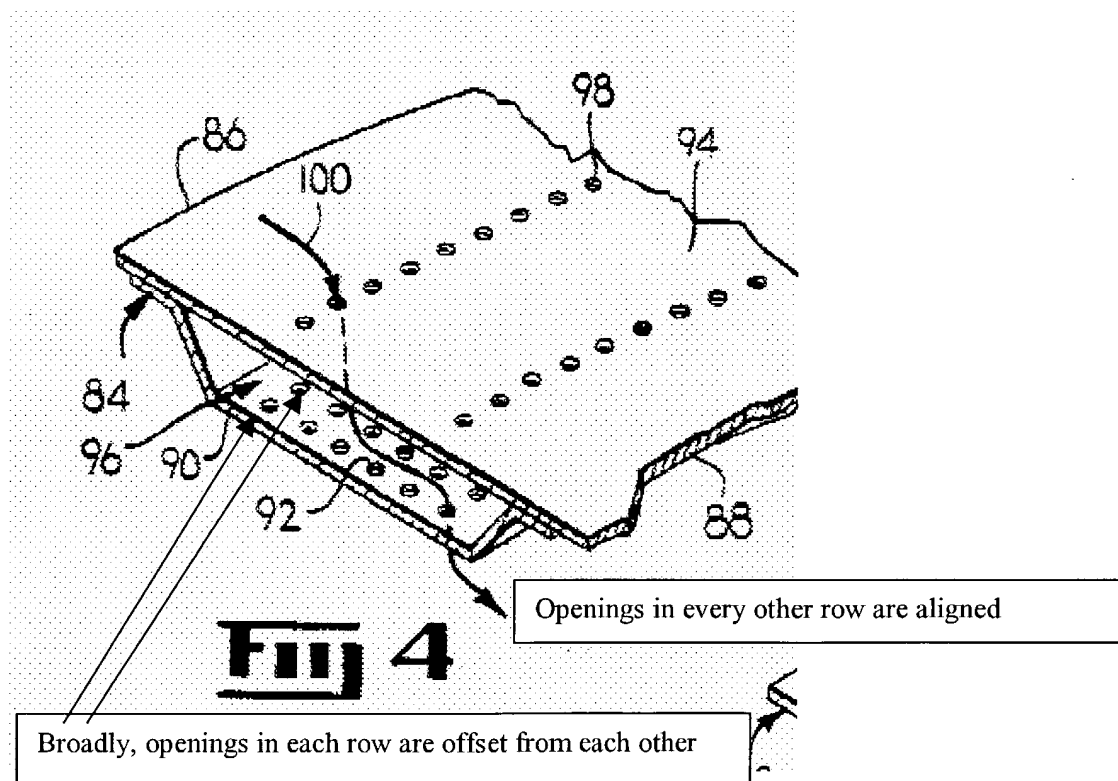
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 12, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al (5,417,056). Johnson et al teach a gas turbine combustor acoustic absorbing wall configured to absorb acoustic energy of a combustion variation, the acoustic energy absorbing wall (col. 5, lines 44-57) that can absorb the acoustic energy of a combustion variation generated within the combustor. The acoustic energy absorbing member is constructed of a perforated plate 49, 200 (Fig. 7, col. 6, lines 15-17) and a back plate 161 disposed outside in a radial direction; cooling air is introduced into the gap (col. 6, lines 11+) there between. The distances L1 (longitudinal) and L2 (circumferential) between the openings on the perforated plate are illustrated and/or disclosed as having a relationship of L1/L2 in the claimed range (see Fig. 7) and positions of the openings adjacently arrayed in a row in the circumferential direction *are offset* such that the positions of the openings in every other row are aligned in the longitudinal direction.

7. Claims 12, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Vdoviak et al (4,833,881). Vdoviak et al teach a gas turbine combustor acoustic absorbing wall configured to absorb acoustic energy of a combustion variation, the acoustic energy absorbing wall (col. 5, lines 30-32) that can absorb the acoustic energy of

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a combustion variation generated within the combustor. The acoustic energy absorbing member is constructed of a perforated plate 90, 92 (Fig. 4 -parallel rows or Fig. 5 -offset rows, col. 6, lines 15-17) and a back plate 94 disposed outside in a radial direction; cooling air 100 is introduced into the gap there between. The distances L1 (longitudinal) and L2 (circumferential) between the openings on the perforated plate are clearly illustrated as having a relationship of $L1/L2$ in the claimed range (see Fig. 4 or 5) and positions of the openings adjacently arrayed in a row in the circumferential direction *are offset* such that the positions of the openings in every other row are aligned in the longitudinal direction (see Fig. 4 for a broad interpretation and Fig. 5 for a narrow interpretation.)



8. Claims 12, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Cowan et al (4,199,936). Cowan et al teach a gas turbine combustor (the embodiment of Fig. 4) acoustic absorbing wall configured to absorb acoustic energy of a combustion variation, the acoustic energy absorbing wall that can absorb the acoustic energy of a combustion variation generated within the combustor. The acoustic energy absorbing member is constructed of a perforated plate with perforations 51 – Fig. 4 and a back plate 22 disposed outside in a radial direction; cooling air is introduced into the gap therebetween. The distances L1 (longitudinal) and L2 (circumferential) between the openings 51 – Fig. 4 on the perforated plate are illustrated and/or disclosed as having a relationship of L1/L2 in the claimed range and positions of the openings adjacently arrayed in a row in the circumferential direction *are offset* such that the positions of the openings in every other row are aligned in the longitudinal direction.

9. Claims 12, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Sattinger et al (6,530,221). Sattinger et al teach a gas turbine combustor (the embodiment of Fig. 3 or Fig. 4 or Fig. 5) acoustic absorbing wall configured to absorb acoustic energy of a combustion variation, the acoustic energy absorbing wall that can absorb the acoustic energy of a combustion variation generated within the combustor. The acoustic energy absorbing member is constructed of a perforated plate 52 and a back plate 50 disposed outside in a radial direction; cooling air is introduced into the gap therebetween. The distances L1 (longitudinal) and L2 (circumferential) between the openings 54 (see Fig. 2B or Fig. 5B) on the perforated plate are illustrated and/or

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disclosed as having a relationship of L1/L2 in the claimed range positions of the openings adjacently arrayed in a row in the circumferential direction *are offset* such that the positions of the openings in every other row are aligned in the longitudinal direction using the broad interpretation.

10. Claims 12, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 2309296 of the IDS. GB '296 teaches a gas turbine combustor acoustic absorbing wall configured to absorb acoustic energy of a combustion variation, the acoustic energy absorbing wall that can absorb the acoustic energy of a combustion variation generated within the combustor. The acoustic energy absorbing member is constructed of a perforated plate 104 and a back plate 109 disposed outside in a radial direction; cooling air is introduced into the gap therebetween. The distances L1 (longitudinal) and L2 (circumferential) between the openings 113 on the perforated plate are illustrated and/or disclosed as having a relationship of L1/L2 in the claimed range positions of the openings adjacently arrayed in a row in the circumferential direction *are offset* such that the positions of the openings in every other row are aligned in the longitudinal direction – using the broad interpretation.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 12, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Johnson et al (5,417,056), Vdoviak et al (4,833,881), Cowan et al (4,199,936), Sattinger et al (6,530,221) or GB 2309296, as applied above and further in view of either Napoli (5,279,127) or Desaulty et al (5,590,531). The prior art teach various aspects of the claimed invention and illustrate the claimed range for the spacing between the openings in the perforated plate. In order to remove any ambiguity, Napoli is cited to teach that it is old and well known in the art to space the holes 80 (Fig. 5) in a perforated plate in a substantially constant spacing for an even distribution (col. 5, lines 55-60) – which falls within the claimed range by having an $L1/L2$ of 1. Desaulty et al teach perforated holes in a combustor liner for either a combustion chamber or afterburner (see abstract) where the holes have the claimed spacing and are also in offset rows. It would have been obvious to one of ordinary skill in the art to employ the claimed spacing range, as taught by either Napoli or Desaulty, as being old and well known for combustor walls, in order to facilitate ease of manufacture and/or low cost. Alternately, as each of the applied prior art illustrate the claimed range, it would have been obvious to employ the claimed range as being an obvious matter of using the workable ranges in the art.

13. Claims 12, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable EP 0971172 of the IDS in view of any of Vdoviak et al (4,833,881), Johnson et al (5,417,056) and Desaulty et al (5,590,531). EP '172 teach a gas turbine combustor acoustic absorbing wall configured to absorb acoustic energy of a combustion variation, the acoustic energy absorbing wall that can absorb the acoustic energy of a combustion

variation generated within the combustor. The acoustic energy absorbing member is constructed of a perforated plate 27 and a back plate 24 disposed outside in a radial direction; cooling air is introduced into the gap therebetween. The spacing of the perforations is not illustrated. However, Vdoviak et al and Johnson each illustrate a perforated acoustic absorbing wall where the perforations are substantially evenly distributed in the longitudinal and circumferential directions, which yields a $L1/L2$ of about 1 – which is well within the claimed range. Desaulty et al teach perforated holes in a combustor liner for either a combustion chamber or afterburner (see abstract) where the holes have the claimed spacing and are also in offset rows. It would have been obvious to one of ordinary skill in the art to employ the claimed ranges for spacing the perforations in the longitudinal and circumferential directions, as being a commonly employed range used in the art.

14. Claims 25, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowan et al (4,199,936) in view of EP 1213539 and optionally JP 06-147485. Cowan teaches a gas turbine combustor comprising a combustor wall configured to absorb acoustic energy of a combustion variation, the combustor wall including a first perforated plate (e.g. containing zones 26 or 30 in Fig. 2), a second perforated plate (e.g. containing zones 30 or 29 in Fig. 2) with differing holes patterns, and a back plate 22, wherein a portion of the first perforated plate inherently overlaps a portion of the second perforated plate. Alternately, it is old and well known in the art to make such liner structure overlap as the conventional structure in the art as evidenced by JP 6-147485. It would have been

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obvious to make the plates overlap as the conventional structure in the art. The back plate 22 is disposed outside the first perforated plate and the second perforated plate in a radial direction and spaced apart from the first perforated plate and the second perforated plate by a gap. Cowan et al do not teach the cooling pipes in the second plate. EP '539 teaches a gas turbine combustor comprising a combustor wall 2 configured to absorb acoustic energy of a combustion variation, the combustor wall including a perforated plate 14 that has cooling pipes 13 embedded therein that are configured to receive cooling fluid in addition to perforations 14 for absorbing acoustic energy. It would have been obvious to one of ordinary skill in the art to employ cooling pipes in the second perforated plate of Cowan et al, in order to cool of the second plate and thus prolong its life. The distances L1 (longitudinal) and L2 (circumferential) between the openings 51 -- see Fig. 4 on the perforated plate are illustrated and/or disclosed as having a relationship of L1/L2 in the claimed range.

15. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cowan et al (4,199,936) in view of EP 1213539 and optionally JP 06-147485, as applied above, and further in view of JP 07-293276. Cowan et al as applied above teaches various aspects of the claimed invention and would appear to have a portion of the first perforated plate inherently overlap a portion of the second perforated plate. In order to obviate any doubt, it is old and well known in the art to make such liner structure overlap as the conventional structure in the art as evidenced by JP 293276, who teaches overlap between plates 5 and 9 and the use of a spring clip 7 therebetween. It would have been

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obvious to one of ordinary skill in the art to make the plates of Cowan et al overlap and employ a spring clip therebetween, in order to maintain the spacing and/or to accommodate thermal expansion.

Response to Arguments

16. Applicant's arguments filed 06/10/2004 have been fully considered but they are not persuasive with respect to the references applied except for JP '939 and EP '717.

Applicant's arguments regarding the rejections applied under 35 USC 102 revolve around three points. First, some of the art is directed to an afterburner which is read on a combustor. Applicant repeatedly argues that the screech suppression liner/afterburner is not a combustor. However, the examiner disagrees noting that an afterburner has combustion taking therein and is therefore broadly a combustor. Applicant has done nothing to distinguish the combustor of the claims from an afterburner. Second, applicant argues that certain references which illustrate the perforated plate and show a relationship of $L1/L2$ in the claimed range does not "necessarily" flow from the teachings of those references. As the claimed range is so large, the range of $0.25 \leq L1/L2 \leq 4$ is clearly shown by the figures of these references. Alternately, as each of the applied prior art illustrate the claimed range, it would have been obvious to employ the claimed/illustrated range as being an obvious matter of using the workable ranges in the art. Third, applicant argues that certain of the prior art do not illustrate "positions of the openings adjacently arrayed in a row in the circumferential direction *are offset* [could be the adjacent openings in any given row being offset from each other] such that the

positions of the openings in every other row are aligned in the longitudinal direction.”

However, this limitation is significantly broader than applicant is interpreting this limitation as it does not require that each row is offset from each adjacent row.

17. In response to applicant's argument that Johnson or afterburner liners is nonanalogous art to combustor liners, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, an afterburner liner is directed to containing a combustion gas – which is clearly analogous to a combustor liner which also contains a combustion gas. Moreover, cooling the liners with perforated holes is shared between the two. Further, Desaulty et al clearly shows that employing perforated holes between either a combustor liner or afterburner liner are clear equivalents (see abstract).

18. Furthermore, with regard to the 103 rejections, applicant has ignored the Examiner's position which has been from the beginning, that as each of the applied prior art illustrate the claimed range of L1/L2, it would have been completely obvious to employ the illustrated range as being an obvious matter of using the workable ranges in the art contemplated by the prior art.

Contact Information

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Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 703-308-2631. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu, can be reached on 703-308-2675.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861.

General inquiries can also be directed to Technology Center Customer Service Office at 703-306-5648 or the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at

<http://www.uspto.gov/main/patents.htm>



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